

WHAT IS CLAIMED IS:

1. A discharge lamp ballast apparatus comprising:

5 a power supply circuit for converting a voltage from a DC power supply, which is connected to a plurality of load circuits, to a prescribed DC voltage, and for converting the prescribed DC voltage to an AC voltage to be supplied to a discharge lamp;

10 a start circuit for generating a high voltage pulse and for superimposing the high voltage pulse on the AC voltage to start discharge of said discharge lamp; and

a controller for controlling a current supplied from said DC power supply in response to a total value of currents flowing through said plurality of load circuits.

15 2. The discharge lamp ballast apparatus according to claim 1, comprising:

20 a DC power supply circuit for supplying the voltage from the DC power supply to a primary side of a transformer of a DC/DC converter, and for converting the voltage to a prescribed DC voltage to be output from a secondary side of said transformer;

an AC power supply circuit for converting the DC voltage from said DC power supply circuit to an AC voltage;

a start circuit for generating a high voltage pulse and for superimposing the high voltage pulse on the AC voltage;

25 first load current detecting means for detecting a load current value flowing through the primary side of said transformer;

second load current detecting means for detecting a load current value flowing through said AC power supply circuit;

30 a total current detector for detecting a total current value

of a load current value detected by said first load current detecting means and a load current value detected by said second load current detecting means; and

5 a controller for controlling the current supplied from said DC power supply in response to the total current value detected by said total current detector.

3. The discharge lamp ballast apparatus according to claim 1, comprising:

10 a discharge lamp ballast circuit including a DC power supply circuit for supplying the voltage from the DC power supply to a primary side of a transformer of a DC/DC converter and for converting the voltage to a prescribed DC voltage to be output from a secondary side of said transformer, an AC power supply
15 circuit for converting the DC voltage from said DC power supply circuit to an AC voltage, and a start circuit for generating a high voltage pulse and for superimposing the high voltage pulse on the AC voltage;

20 load current detecting means provided to a plurality of discharge lamp ballast circuits connected to said DC power supply for detecting individual load currents flowing through said plurality of discharge lamp ballast circuits;

25 a total current detector for detecting a total current value flowing into said plurality of discharge lamp ballast circuits in response to the load current values detected by said load current detecting means; and

a controller for controlling the current supplied from said DC power supply in response to the total current value detected by said total current detector.

4. The discharge lamp ballast apparatus according to claim 2, wherein said controller imposes overcurrent limitation on the current supplied from said DC power supply in response to the total current value detected by said total current detector.

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5. The discharge lamp ballast apparatus according to claim 2, wherein said total current detector comprises a summing amplifier circuit for carrying out summing amplification of the load current values detected by said plurality of load current detecting means.

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6. The discharge lamp ballast apparatus according to claim 2, wherein said total current detector comprises a comparing circuit for comparing an output of said summing amplifier circuit with a reference value, and for limiting the current supplied from said DC power supply when the output of said summing amplifier circuit exceeds the reference value.

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7. The discharge lamp ballast apparatus according to claim 6, wherein said comparing circuit has an integrating function irresponsible to an instantaneous large current.

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8. The discharge lamp ballast apparatus according to claim 6, wherein said comparing circuit has an integrating function of setting an arbitrary response characteristic that is irresponsible to an instantaneous large current.

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